

CLAIMS

What is claimed is:

7. A melt blowing spinnerette for extruding two thermoplastics to produce a plurality of filaments, which individually comprise a first polymeric material extending longitudinally along the fiber through a first portion of the cross-sectional area of said fibers and a second polymeric material adhered to said first polymeric material and extending longitudinally along said fibers through a second portion of the cross-sectional area of the fibers,
comprising:
 - a) A first set of nozzles arranged in at least one row,
 - b) A first polymer melt chamber to feed the first set of nozzles,
 - c) A second set of nozzles with the same number, arranged in the same center-to-center spacing as in the first set of nozzles, said second set of nozzles surrounding each of said first set of nozzles thus forming nozzle pairs, and said second nozzles having a larger inside diameter than the outside diameter of said first set of nozzles
 - d) A second polymer melt chamber to feed the second set of nozzles,
 - e) A top plate with air holes surrounding and being concentric with each nozzle pair, said air holes being supplied with compressed hot air from an air chamber.
 - f) A mechanism to keep the components in an assembly.
8. A melt blowing spinnerette of claim 7 wherein the first set of nozzles have a length-to-inside-diameter ratio of at least 25.
9. A melt blowing spinnerette of claim 7 wherein the second set of nozzles have a length-to-inside-diameter ratio of at least 25.
10. A melt blowing spinnerette of claim 7 wherein the air holes in said top plate are at least 0.001 inch larger than the outside diameter of the second set of nozzles.
11. A process for making products of melt blown bi-component fibers,

comprising:

- a. Extruding a mass of said first polymeric material through said first set of nozzles arranged in at least one row, and a mass of said second polymeric material through said second set of nozzles arranged in the same center-to-center spacing for bicomponent extrudate
 - b. Advancing said extrudate into high velocity gas streams surrounding circumferentially each individual nozzle pair of said first and second set of nozzles,
 - c. Attenuating said bi-component extrudate from each of said nozzle pairs to form said bi-component fibers,
 - d. Collecting the said bi-component fibers on one or more moving surfaces to form a fibrous product.
12. A fibrous product of said bicomponent fiber, in the forms of yarn, tow, nonwoven fabrics, and filter cartridge, being prepared by
- a. Extruding a mass of said first polymeric material through said first set of nozzles arranged in at least one row, and a mass of said second polymeric material through said second set of nozzles arranged in the same center-to-center spacing for bicomponent extrudate
 - b. Advancing said extrudate into high velocity gas streams surrounding circumferentially each individual nozzle pair of said first and second set of nozzles,
 - c. Attenuating said bi-component extrudate from each of said nozzle pairs to form said bi-component fibers,
 - d. Collecting the said bi-component fibers on one or more surfaces to form a fibrous product.
13. The fibrous product of claim 12 wherein the bicomponent fibers have a broad fiber diameter distribution, ranging from 0.3 micrometer to 25 micrometer.

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ABSTRACT